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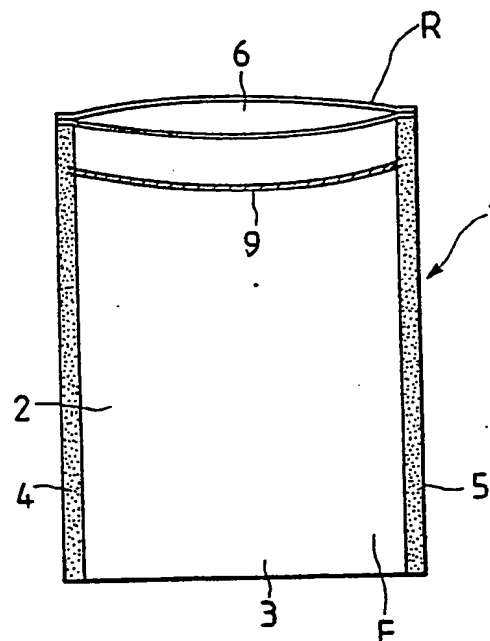
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(54) **Pouch for containing retort food.**

(57) A pouch (1) is formed of a laminate sheet for containing contents such as retort food. Both sides (4, 5) of front (F) and rear (R) walls of the pouch (1) are heat sealed together and top opening (6) is also heat sealed (7) after filling with the contents. The laminate sheet has at least two heat sealable plastic layers (14, 15) on the inner side of an aluminium foil (12). The heat sealable plastic layer (15) includes weakened zones (9) in both front (F) and rear (R) walls. The zones (9) are superposed and extend along a tearing direction from a notch (8) formed at one side (4) to the other side (5). The other plastic layer (14) forms a contents blocking layer which prevents the contents of the pouch (1) coming into contact with the aluminium foil (12).

**FIG. 1**



EP 0 363 540 A2

## Pouch For Containing Retort Food

The present invention relates to a pouch for sealingly containing retort food.

A laminate sheet is conventionally used as a material of a pouch for containing a retort food. The laminate sheet includes a laminate film formed of plastic material layers, and an aluminium foil joined to or deposited on it for enhancing breakage strength and blocking moisture. The laminate film has a base substrate formed of polypropylene, nylon or polyester, and the film is biaxially oriented film.

Generally, a rectangular laminate sheet is folded into two sections to define front and rear walls, and confronting three side edge portions are heat sealed together to obtain a bag shape. Such pouch is ordinarily referred to as a "pillow type" pouch. Alternatively, two identical rectangular laminate sheets are prepared serving as the front and rear walls, and these are superposed together, and are joined along all four side edge portions.

The laminate sheet of this type has high breaking strength, which ensures that the contents are not inadvertently discharged but it is rather difficult to tear the pouch at the heat sealed edges to discharge the contents packed inside when required. To overcome this problem, a V-shaped or I-shaped notch is formed on at least one heat sealed portion to facilitate the opening.

Still however, since the laminate sheet has a large breaking strength, it is still difficult to tear it. Also it is difficult to tear both walls evenly which makes it difficult to control the discharge of the contents.

Another proposal has been made to overcome this drawback. According to this proposal, the base substrate film which also functions as a heat sealing layer formed of non-oriented polypropylene is formed over an aluminium film, and linear slits are formed in it to facilitate tearing. The resultant pouch does not have sufficient impact strength and thus does not form a satisfactory package. Further, the aluminium foil may directly contact the contents by entering the slits in the heat sealing layer, and can cause corrosion of the aluminium foil.

According to this invention a pouch for containing contents such as retort food including a rectangular front wall and a rectangular rear wall of identical shape, three heat sealed sections joining the front and rear walls together along two opposite sides and the top, and a notch formed in one of the heat sealed sections, the front and rear walls being formed of a laminate sheet including a plastic film layer, and an aluminium foil; is characterised in that the laminate sheet also includes a contents blocking layer, in that the contents blocking layer or the

plastic film layer is bonded to the aluminium foil, and in that the plastic film layer of both the front and rear walls is formed with weakened zones extending from the notch to the opposite side of the pouch, the weakened zones in the front and rear walls being superposed.

The present invention provides a pouch which has sufficient sealability and strength and yet is easily tearable to discharge its contents. Upon initiating the tearing at the notch, the pouch can be torn along the weakened zones to the other side. During this tearing because weakened zones in the front and rear walls are aligned with one another the contents can be retained in the pouch and then conveniently discharged after the pouch has been fully opened. Further, since the content blocking layer is provided, the contents are prevented from contacting aluminium foil so that it is not subjected to corrosion.

A particular example of a pouch in accordance with this invention will now be described with reference to the accompanying drawings; in which:-

Figure 1 is a front view of a pillow type pouch in which a top opening is not heat sealed;

Figure 2 is a front view of the pillow type pouch in which the top opening is heat sealed;

Figure 3 is a cross-section through the laminate sheet used for the pouch; and,

Figure 4 is a plan of a laminate blank prior to heat sealing.

A pillow type pouch prior to filling a content therein is shown in Figure 1. The pillow type pouch 1 is formed of a laminate sheet 2 and includes a rectangular front wall F, a rectangular rear wall R having a shape identical with the front wall, a bottom portion 3, which is a folding line (23 in Figure 4), a first side heat sealed portion 4, a second side heat sealed portion 5, and a top opening 6. Confronting side edge portions of the front and rear walls are heat sealed together to provide the first and second side heat sealed portions 4 and 5. These side heat sealed portions are heat sealed by an ordinary heat sealing device. Further, as shown in Figure 2, confronting top edges are also heat sealed together to provide a top heat sealed portion 7 after the content is filled in the pouch through the top opening 6.

A notch 8 is formed at the first side heat sealed portion 4 at a position adjacent the top heat sealed portion 6. According to the present invention, a surface roughened zone 9 having a small width is provided at inner surfaces of the front and rear walls F and R. The surface roughened zone 9 extends from the notch 8 to the second side heat sealed portion 5 in parallel with the top heat sealed

portion 7.

As shown in Fig. 3, the laminate film 2 includes a polyester film layer 10 having a thickness of 12 microns and serving as an external surface layer Fo, an adhesive layer 11, an aluminum foil 12 having a thickness of 9 microns, an adhesive resin layer 13, a first cast polypropylene film layer 14 having a thickness of 15 microns, and a second cast polypropylene film layer 15 having a thickness of 50 microns and serving as an inner surface Fi. The first cast polypropylene film layer 14 serves as a content blockage layer described later. At the second cast polypropylene film layer 15, the surface roughened portion 9 is formed. The adhesive layer 11 serves to bond the outer layer 10 to the aluminum foil 12, and the adhesive resin layer 13 serves to bond the first cast polypropylene film layer 14 to the aluminum foil 12. Further, the second cast polypropylene film layer 15 serves as the heat sealed material. The surface roughened portion 9 is formed with surface scored lines 9a each extending in directions parallel with the extending direction of the zone 9. The scored lines 9a can be formed mechanically. For example, the cast polypropylene film layer 15 is subjected to knurling by a roller formed with a plurality of circumferentially extending projections. Alternatively, perforated score line(s) is also available to provide the surface roughened portion. After the one surface Fi of the innermost layer 15 is subjected to scoring, the first cast polypropylene layer 14 is joined to another surface (flat surface) of the innermost layer 15 by extrusion molding. Therefore, the polypropylene layer has a total thickness of 65 microns, and non-scored layer 14 is interposed between the aluminum layer 12 and the scored layer 15.

A production of such pouch will next be described with reference to Fig. 4. Firstly, an elongated rectangular laminate sheet 20 is prepared. The sheet has a length twice as large as a length of the resultant pouch and a width equal to that of the resultant pouch, and a foldable line 23 is defined at a central portion of the sheet 20. One longitudinal edge portion 22 serves as the first heat sealed portion 4, and another longitudinal edge portion 22' serves as the second heat sealed portion 5. Further, end edges 21 and 21' serve as the top heat sealed portion 6. Upon folding the rectangular laminate sheet 20 at the folding line 23, these edge portions confront with each other. Further, a pair of surface roughened portion 9, 9' are formed at positions close to the end edges 21 and 21', respectively. The roughened portion 9, 9' extend in parallel with the end edges 21, 21'. Each one end of the roughened portions is provided even at the one longitudinal edge portion 22, and each another end of the roughened portions is provided even at the other longitudinal edge portion 22'. Of course,

the surface roughened portions 9 and 9' are superposed together when folding the elongated sheet 20.

Then, after the elongated sheet 20 is folded into two sections F and R at the foldable line 23, confronting longitudinal edge portions 22 and 22' are heat sealed to provide a bag shaped configuration. In this case, the surface roughened portions 9 and 9' confront with each other. Thereafter, the notch 8 is formed at the first side heat sealed portion 4 at a position in alignment with the surface roughened portion 9 and 9'. Then, a content is filled into the bag shaped pouch through the top opening 6, and thereafter, the top opening is also heat sealed together at the zones 21 and 21'.

For taking out the content, user grips both sides of the notch 8 and pulls the first side heat sealed portion 4 in opposite directions with respect to the notch 8. As a result, tearing occurs at the notch portion 8 and is propagated along the surface roughened portion 9 which is contiguous with the notch. This tearing is easily and continuously propagated to the second side heat sealed portion 5, because of the formation of the surface roughened portion 9 reaching thereto. In this case, since the surface roughened portion 9' at the front wall F is in alignment with the surface roughened portion 9 at the rear wall R, tearing lines at the front and rear walls are also aligned with each other, and accordingly, no inadvertent content flooding occurs.

Further, even if the scored lines 9a penetrate the second cast polypropylene film layer 15 in thickness direction and the internal content is entered into the scored holes, (if perforated scored lines are formed to form the surface roughened portion 9, such penetration does occur), the content does not reach the aluminum foil 12 since the intermediate first cast polypropylene layer 14 (content blockage layer) is interposed between the aluminum foil 12 and the innermost layer 15. Accordingly, even if the content is stored in the pouch for a long period of time, corrosion of the aluminum foil 12 by the contact with the content never occurs, which in turn, can maintain the content in stabilized quality for a long duration of time.

In the above described embodiment, the pillow type pouch is described. However, four side seal pouch is also available in the present invention wherein two identically shaped laminate sheets are superposed together and heat sealed together. Further, in the above described embodiment, the scored lines 9a are in direct contact with the content packed in the pouch. However, it would be also possible to bond the scored layer directly to the aluminum foil, and the above mentioned first cast polypropylene 14 is functioned as the innermost layer in contact with the content.

In view of the foregoing, according to the

present invention, the tearing position has already been determined by the surface roughened portions 9 and 9' which have mechanical strength smaller than the non roughened portion, and these surface roughened portions 9 and 9' are superposed with each other. Therefore, the pouch is easily tearable along the surface roughened portions. Further, the tearing line at the front wall of the pouch is also superposed with the tearing line at the rear wall thereof, so that inadvertant flooding of content is avoidable. Furthermore, the additional cast polypropylene film 14 can prevent the content from reaching the aluminum foil through the scored portions. Therefore, corrosion of aluminum foil is avoidable, to thus maintain the content in stabilized quality for a long period of time.

#### Claims

1. A pouch (1) for containing contents such as retort food including a rectangular front wall (F) and a rectangular rear wall (R) of identical shape, three heat sealed sections (4, 5, 7) joining the front (F) and rear (R) walls together along two opposite sides and the top, and a notch (8) formed in one of the heat sealed sections (4, 5, 7), the front (F) and rear (R) walls being formed of a laminate sheet including a plastic film layer (15), and an aluminium foil (12); characterised in that the laminate sheet also includes a contents blocking layer (14), in that the contents blocking layer (14) or the plastic film layer (15) is bonded to the aluminium foil (12), and in that the plastic film layer (15) of both the front (F) and rear (R) walls is formed with weakened zones (9) extending from the notch (8) to the opposite side of the pouch (1), the weakened zones (9) in the front (F) and rear (R) walls being superposed.

2. A pouch according to claim 1, wherein the first and second weakened zones are formed by scoring parallel lines (9a) through the plastic film (15).

3. A pouch according to claim 1, wherein each of the weakened zones (9) are formed by perforated score line through the plastic film (15).

4. A pouch according to any one of the preceding claims, wherein the content blocking layer (14) comprises a first cast layer of polypropylene and wherein the plastic film layer (15) comprises a second cast layer of polypropylene.

5. A pouch according to claim 4, wherein the plastic film layer (15) is positioned inside the pouch (1) in contact with its contents, and the content blocking layer is interposed between the plastic film layer (15) and the aluminium foil (12).

6. A pouch according to claim 5, wherein the plastic film layer (15) is formed of a heat fusible

material.

7. A pouch according to claim 4, wherein the content blockage layer (14) is positioned inside the pouch (1) in contact with its contents, and the plastic film layer (15) is interposed between the content blocking layer (14) and the aluminium foil (12).

8. A pouch according to claim 7, wherein the content blockage layer (14) is formed of a heat fusible material.



FIG. 1

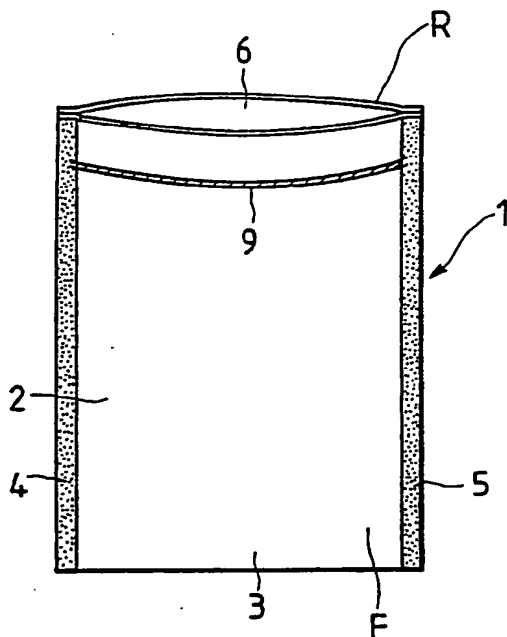


FIG. 3

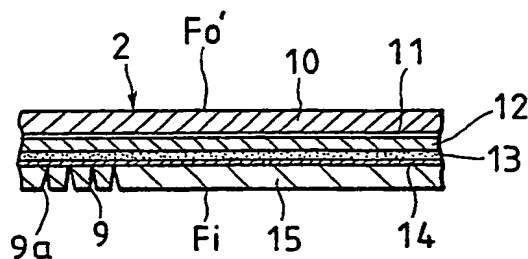


FIG. 4

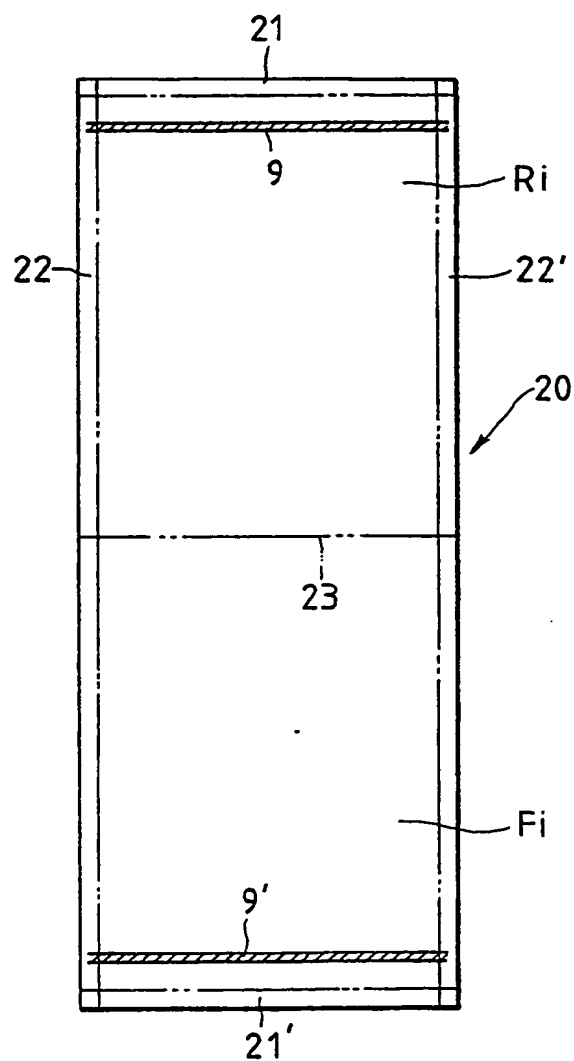
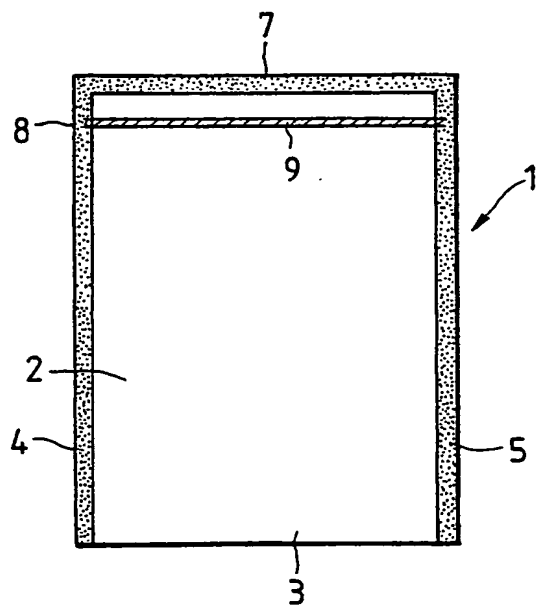


FIG. 2





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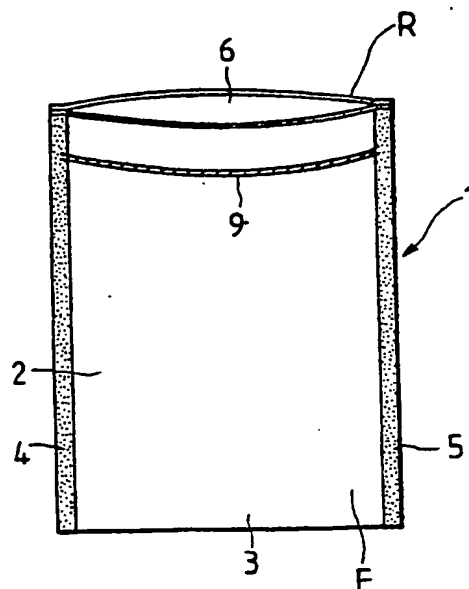
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## FIG. 1



EP 0 363 540 A3



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## EUROPEAN SEARCH REPORT

Application Number

EP 88 31 1090

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 5)
A	BE-A- 655 497 (AB TETRA) * Pages 5,6, claim 1; figure 1 *	1	B 65 D 30/08 B 65 D 75/62
A	FR-A-2 248 987 (AGFA) * Page 4, claims 1,2; figures 2,3 *	1	
A	EP-A-0 263 383 (ROCKFORD)		
			TECHNICAL FIELDS SEARCHED (Int. Cl. 5)
			B 65 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 14-08-1990	Examiner BESSY M.J.F.M.G.
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			